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The Congress logo, commissioned from local aboriginal artist Laurie Nilsen, incorporates cross hatching which represents an indigenous presence on the land. The two leaves represent the northern and southern hemispheres, and reflect the element of balance. The motif under the leaves is representational of communication and the flow between the water and land elements on a stylised Australia. The logo aligns with the Congress Theme "Forests in the Balance: Linking Tradition and Technology".

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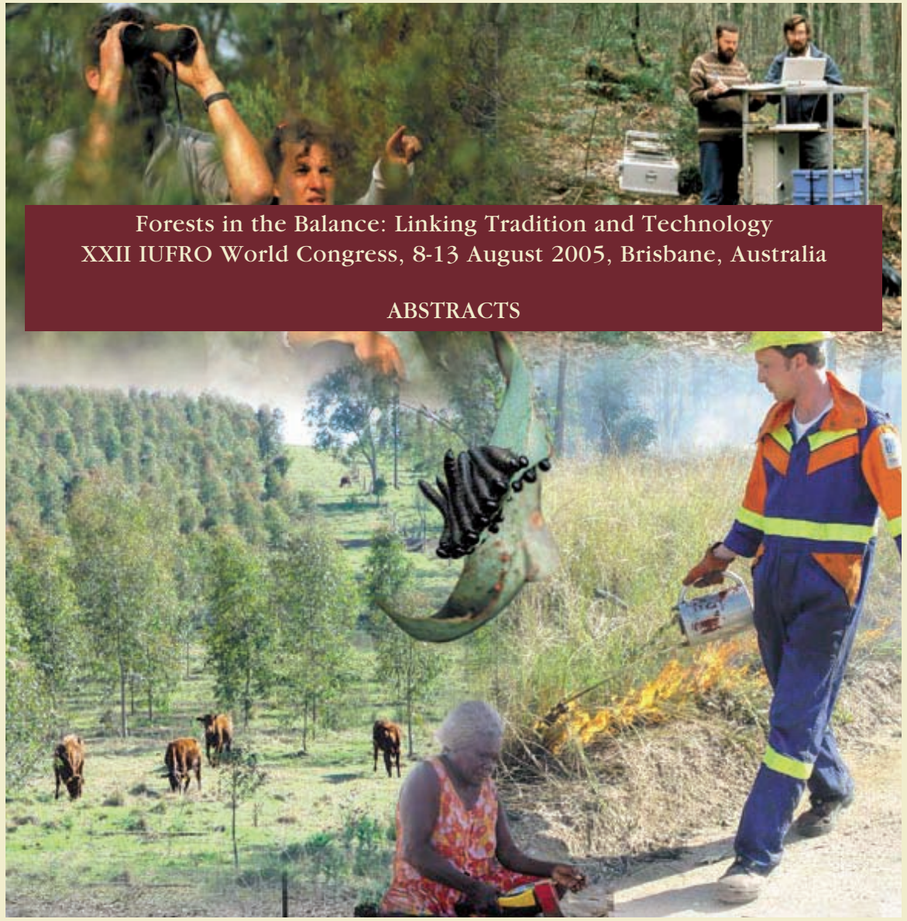

Forests in the Balance: Linking Tradition and Technology
XXII IUFRO World Congress, 8-13 August 2005, Brisbane, Australia

ABSTRACTS

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The International Forestry Review

Forests in the Balance: Linking Tradition and Technology

XXII IUFRO World Congress, 8-13 August 2005, Brisbane, Australia

Abstracts

EDITORS

JOHN L. INNES, IVOR K. EDWARDS and DAVID J. WILFORD

Preface

On behalf of the Congress Scientific Committee, I am pleased to provide an introduction to this volume of abstracts. The abstracts represent the scientific contributions to the XXII World Congress of the International Union of Forest Research Organizations, a Congress that has as its theme 'Forests in the Balance: Linking Tradition and Technology'. This title was deliberately ambiguous, and was intended to mean different things to different people. At its most basic, the future of many forests around the world really is in the balance, as conversion of forests to other forms of land use continues. For the forests that remain, and for the increasing area of forests in some countries, pressures are mounting on the goods and services that they provide. Some of these goods and services are mutually exclusive, and making trade-offs between them is all about achieving the right balance. On a more abstract note, the future of forestry as a profession is also in the balance. Major changes are occurring in the way forestry is practiced, and these changes seem to be occurring globally, although not always in the same direction. For example, in Europe and some parts of North America, we are seeing pressure to practise forms of forestry that are 'closer to nature'. In areas that still have natural forests, the pressure is there to make forestry less intrusive, and techniques such as reduced impact logging are becoming mainstream. We are also seeing changes in the skills needed by those working within the forest sector. Forest management skills are evolving rapidly to be much more focused on the relationship between people and their forests, yet our university curricula are having difficulty adjusting to this change in demand. The forest sciences are increasingly dominated by biotechnology and tensions have developed between, for example, traditional forms of tree breeding and improvement and those that involve techniques such as bioengineering. We are also seeing major changes in the ways that we utilize the products derived from forests, including both timber and non-timber products. Wood processing techniques are becoming increasingly sophisticated, requiring new skills and expertise. All of these changes are reflected in the sub-themes and sessions of the Congress.

The sub-title 'Linking Tradition and Technology' reflects the efforts that are needed to ensure that the changes engendered by the rapid introduction of technology do not completely mask more traditional forms of knowledge, particularly the traditional knowledge of aboriginal peoples and forestry communities. This is no more evident than in Queensland 'The Smart State', where the government has a vision that 'knowledge, creativity and innovation drive economic growth to improve prosperity and quality of life for all Queenslanders', yet there is a significant aboriginal legacy. The vision of the Queensland Government could equally be applied to forest sectors around the world; the move by forest-dependent communities around the world to gain greater control of their resources reflects their desires to see forests provide a greater contribution to their livelihoods, whether in the form of economic, social or spiritual aspects of their quality of life.

The 2005 Congress has seen the introduction of a number of changes to the way the Congress is organized and structured. The sessions were the result of a call for proposals for sessions made in 2003. Some fields of research are less well-represented than others, but this reflects the willingness of scientists within those areas to organize sessions. In making the selection of sessions a competitive process, we have tried to ensure not only a consistent quality across all sessions, but also to encourage external groups into the IUFRO sphere. I am particularly pleased to see the presence of so many sessions dealing with the social and economic aspects of the forest sector. The forest sector could, and should, be the epitome of sustainable resource management, and we must always remember that sustainability represents a balance between environmental, social and economic values. In response to views expressed after the 2000 Congress, we have attempted to reduce the

number of parallel sessions, and ensure minimal overlap between these. This has meant that much information will be presented in the form of posters, and I strongly encourage you to make effective use of this form of communication. You will find that we have placed the posters in prominent positions throughout the Convention Centre, reflecting the belief of the Congress Scientific Committee that they are a highly effective means of communication.

I hope that you will take the opportunity to browse through abstracts not directly related to your own field of interest. A Congress is intended to be an opportunity for people from diverse disciplines to get together to discuss issues of common concern. Even if you were unable to attend the Congress itself, the abstracts presented here represent an important snapshot of the state of the art of forest science in 2005, and well worth any time that you can devote to them.

Professor John Innes
Chair, Congress Scientific Committee

Sub-themes and sessions

presenting opportunities to search for efficiency improvements across company borders. This article report the findings from a case study involving a major lumber manufacturing corporation in Norway and its largest customer, a vertically integrated distributor and home improvement retailer. In particular, the order process extending from identification of demand at the retail store to fulfillment of demand was comprehensively mapped, and possible areas for improved efficiency in the supply chain were identified. Using this approach, simple solutions for process improvement are commonly found, simply because individual actors rarely focus on optimizing the complete supply chain, but rather sub-optimize a small fraction of the chain. The article also discusses some of the problems encountered when developing measures of performance intended to monitor and improve the process across company borders. Creating measures for monitoring performance is technically and methodologically difficult when dealing with several actors in a complex organization,using different business systems. The challenge greatly increases when the actor's business objectives and philosophies are traditionally conflicting.

Current state-of-knowledge: Innovation research in the global forest sector. Hansen, E. (*Oregon State University, USA; eric.hansen2@oregonstate.edu*), Rametsteiner, E. (*BOKU University of Natural Resources and Applied Life Sciences, Austria; ewald.rametsteiner@boku.ac.at*), Bull, L. (*University of Melbourne, Australia; l.bull@pgrad.unimelb.edu.au*), Korhonen, S. (*University of Helsinki, Finland; sikorhon@mappi.helsinki.fi*), Segura-Bonilla, O. (*Universidad Nacional Costa Rica; osegura@una.ac.cr*), Shook, S. (*University of Idaho, United States; Shook@uidaho.edu*).

In recent years, countries with fast-developing economies, change in technologies, especially ICT, changing consumer markets and other factors have had a dramatic impact on forestry and forest-based manufacturing sectors in many parts of the world. As a result, there has been a renewed interest in innovation and innovativeness as a means to maintain global competitiveness and assure healthy economic growth. We discuss findings from a recent multi-authored white paper on innovation in the forest sector. The paper reviews the main concepts applied in contemporary innovation research and related findings, discusses the situation of innovation research (concepts applied, related findings) in the forest sector, identifies future research needs and problems to tackle as well as proposals for further work/ways to strengthen the field. Our goal is to provide a forum amongst global researchers on innovation in the forest sector leading to enhanced networking and discovery in this field.

A non-parametric approach to analyze productive efficiency, competitiveness and innovation in Spain's wood and paper industry. Herruzo, A.C., Diaz-Balteiro, L., Martinez, M., González-Pachón, J., Romero, C. (*Technical University of Madrid. Spain; herrzc@montes.upm.es*).

In Spain, previous studies have found a lack of significant links between the efficiency of the timber and paper industries and R&D activities both at the aggregate and industry group levels. This outcome is consistent with the innovation strategy followed in the past by many Spanish industries, based on the acquisition of embodied technology available in international markets and a low entrepreneurial priority toward research and innovation activities as a mean to achieve competition. This paper intends to discuss these conclusions in more detail by analyzing the relationship between competitiveness, efficiency and innovation activities in Spain's wood and paper industries. This is accomplished by using a non-parametric technique (data envelopment analysis, DEA), incorporating several inputs and outputs associated with the abilities of these enterprises.

Threads for the development of forestry contractors in Central and Eastern European countries: The Hungarian case. Major, M. (*Albert-Ludwigs-University, Germany; matyas.major@fobawi.uni-freiburg.de*), Kastenholz, E. (*Office for Occupational Safety and Work Organisation, Germany; edgar.kastenholz@enfe.net*), Lewark, S. (*Albert-Ludwigs-University, Germany; siegfried.lewark@fobawi.uni-freiburg.de*).

The transition of Central and Eastern European countries from centrally planned to market economies led to radical changes. In Hungary, rationalization in the still-dominant state forest enterprises led to the dismissal of almost all directly-employed forestry workers. Workers were offered job opportunities, but now as independent contractors. To describe development tendencies an inquiry using a standardized questionnaire among all Hungarian state forest enterprises (return rate 35%) and 700 forestry contractors (return rate 20%) was carried out. First results indicate that many contractors would strive for economic development, but that their own possibilities for influencing the recent situation are limited. Factors such as precarious economic conditions, insecure future job perspectives, lack of possibilities for decent loans, high taxes and insurance rates and competition by contractors using illegal workers are among the issues that have posed severe threats for enterprises that have been established recently. It is crucial to find solutions for these problems on the level of individual contractors as well as to identify appropriate political and economic instruments to avert the ruin of many contractors, which would lead to the loss of experienced forestry workforce, and threaten Hungarian forestry as a whole.